In the Claims

1. (previously presented) A sensor which is resistant to degradation at high temperature; such sensor comprising:

a first electrically conductive component;

a second electrically conductive component in contact with said first electrically conductive component;

a pair of leads connected one each to said first and second electrically conductive components for transmitting an electrical signal;

said first electrically conductive component formed from at least one first noble metal and an oxide deposited within grain boundaries and main body portion of the at least one first noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these;

said second electrically conductive component formed from at least at least one second noble metal, different than the first noble metal, and an oxide deposited within grain boundaries and main body portion of the at least one second noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these.

2. (original) The sensor of claim 1, wherein, said second component further comprises the first noble metal.

3. (original) The sensor of claim 2, wherein, said second component comprises an alloy of said first and second noble metals.

4. (original) The sensor of claim 1, wherein, said first noble metal is a platinum group metal.

5. (original) The sensor of claim 4, wherein, said second noble metal is a platinum group metal.

6. (original) The sensor of claim 4, wherein, the first noble metal is platinum.

7. (original) The sensor of claim 4, wherein, the second noble metal is rhodium.

8. (original) The sensor of claim 6, wherein, the second component comprises a platinum rhodium alloy.

9. (original) The sensor of claim 6, wherein, the first component comprises platinum and where the oxide is dispersion hardened within grain boundaries and a main body portion of the platinum.

10. (original) The sensor of claim 9, wherein, the first component comprises yttrium oxide and zirconium oxide.

11. (original) The sensor of claim 8, wherein, the second component comprises a platinum rhodium alloy and where the oxide is dispersion hardened within grain boundaries and a main body of the platinum rhodium alloy.

12. (original) The sensor of claim 11, wherein, the second component comprises yttrium oxide and zirconium oxide.

13. (original) The sensor of claim 12, wherein, the platinum rhodium alloy is Pt-10% Rh.

14. (original) The sensor of claim 1, wherein, said electrical signal comprises a varying voltage.

15. (original) The sensor of claim 14, further comprising a transducer and wherein the varying voltage is applied to said transducer.

16. (original) The sensor of claim 15, further comprising a transducer output, said output correlating to a temperature.

17. (original) The sensor of claim 16, wherein, said transducer is a temperature measuring device.

18. (original) The sensor of claim 16, wherein, said transducer output correlates to calibration data.

19. (original) The sensor of claim 16, wherein, said transducer output correlates to a standard reference output.

20. (original) The sensor of claim 16, wherein, said transducer output correlates to a National Institute of Standards and Technology reference.

21. (original) The sensor of claim 16, wherein, said transducer output correlates to an International Electrotechnical Commission reference.

22. (original) The sensor of claim 14, further comprising a conditioner and wherein the varying voltage is applied to said conditioner.

23. (original) The sensor of claim 22, further comprising a conditioner output, said output comprising a conditioned varying voltage.

24. (original) The sensor of claim 22, wherein, said varying voltage is adapted to power electronics.

25. (original) The sensor of claim 23, wherein said conditioner output is adapted to power electronics.

26. (original) The sensor of claim 1, wherein, the sensor is a thermocouple.

27. (original) The sensor of claim 1, wherein, the sensor is a heat flux sensor.

28. (original) The sensor of claim 26, wherein, the sensor comprises one of a parallel array of sensors to create a thermopile.

29. (original) The sensor of claim 26, further comprising at least one sheath, said sheath housing at least one component.

30. (original) The sensor of claim 29, wherein, said sheath is formed from at least one noble metal and an oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these.

31. (original) The sensor of claim 29, wherein, said sheath is formed of a high temperature alloy.

32. (original) The sensor of claim 29, further comprising insulation, said insulation insulating at least one component from at least on sheath.

33. (original) The sensor of claim 32, wherein, said insulation comprises a refractory material.

34. (original) The sensor of claim 32, wherein, said insulation comprises Al_2O_3.

35. (original) The sensor of claim 32, wherein, said insulation comprises MgO.

36. (currently amended) The sensor of claim 1, further comprising a substrate, said first or second component formed by depositing <u>on said substrate</u> at least one noble metal and an oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these.

37. (original) The sensor of claim 1, adapted to operate up to 1700 °C.

38. (previously presented) A sensor which is resistant to degradation at high temperature; said sensor comprising:

a first electrically conductive component;

a second electrically conductive component in contact with said first electrically conductive component;

said first and second electrically conductive components adapted to transmitting an electrical signal;

said first electrically conductive component formed from an oxide selected from the group consisting of the transitional metal oxides and the rare earth metal oxides, and combinations of these, said oxide dispersion hardened within a grain boundary and within a main body of a first base metal selected from the group consisting of the noble metals and the precious metals, and combination of these and;

said second electrically conductive component formed from an oxide selected from the group consisting of the transitional metal oxides and the rare earth metal oxides, and combinations of these, said oxide dispersion hardened within a grain boundary and within a main body of a second base metal, different than the first base metal, selected from the group consisting of the noble metals and the precious metals, and combination of these.

39. (original) The sensor of claim 38, wherein, said second component further comprises the first base metal.

40. (original) The sensor of claim 39, wherein, said second component comprises an alloy of said first and second base metals.

41. (original) The sensor of claim 38, wherein, said first base metal is a noble metal.

42. (original) The sensor of claim 38, wherein, said second base metal is a noble metal.

43. (original) The sensor of claim 41, wherein, said first base metal is a platinum group metal.

44. (original) The sensor of claim 42, wherein, said second base metal is a platinum group metal.

45. (original) The sensor of claim 43, wherein, the first base metal is platinum.

46. (original) The sensor of claim 44, wherein, the second base metal is rhodium.

47. (original) The sensor of claim 46, wherein, the second component comprises a platinum rhodium alloy.

48. (original) The sensor of claim 47, wherein, the first component comprises yttrium oxide and zirconium oxide.

49. (original) The sensor of claim 47, wherein, the second component comprises yttrium oxide and zirconium oxide.

50. (original) The sensor of claim 38, wherein, the sensor is a thermocouple, said thermocouple output is calibrated to a standard reference output.

51. (original) The sensor of claim 38, wherein, the sensor is a thermocouple adapted to measuring localized temperature.

52. (original) The sensor of claim 38, wherein, the sensor is a thermocouple adapted to generate a voltage to power devices.

53. (previously presented) A method for manufacturing a high temperature resistant sensor comprising:

forming a first electrically conductive component from at least one first noble metal and an oxide deposited within grain boundaries and main body portion of the at least one first noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these;

forming a second electrically conductive component from at least at least one second noble metal, different than the first noble metal, and an oxide deposited within grain boundaries and main body portion of the at least one first noble metal, the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these;

joining said first and second electrically conductive components to form a junction; and

connecting a first and a second conductor to said first and second electrically conductive components respectively for transmitting electrical signals.

54 (original) The method according to claim 53, further comprising generating an electrical signal, wherein, the electrical signal is a varying voltage.

55. (original) The method according to claim 54, comprising transducing the varying voltage to an output.

56. (original) The method according to claim 55, comprising importing said output to a temperature measurement device.

57. (original) The method according to claim 55, comprising correlating the output to a calibration data.

58. (original) The method according to claim 55, comprising conditioning the output to power electronics.

59. (original) The method according to claim 53, further comprising forming the first component by dispersion hardening the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these within grain boundaries and a main body portion of the at least one first noble metal.

60. (original) The method according to claim 59, further comprising forming the second component by dispersion hardening the oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these within grain boundaries and a main body portion of the at least one second noble metal.

61. (original) The method according to claim 53, comprising assembling the sensor as a thermocouple.

62. (original) The method according to claim 53, comprising assembling the sensor as a heat flux sensor.

63. (original) The method according to claim 53, comprising engaging the sensor as one of a parallel array of sensors to create a thermopile.

64. (previously presented) A sensor which is resistant to degradation at high temperature comprising:

a first electrically conductive component formed from an oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations of these, said oxide dispersion hardened within a grain boundary and within a main body of platinum;

a second electrically conductive component formed from an oxide selected from the group consisting of yttrium oxide, cerium oxide, zirconium oxide, and combinations

of these, said oxide dispersion hardened within a grain boundary and within a main body of a platinum rhodium alloy, said second electrically conductive component in contact with said first electrically conductive component to form a junction;

a first conductor electrically connected to said first electrically conductive component;

a second conductor electrically connected to said second electrically conductive component; and

a transducer electrically connected to said first and second conductors.

65. (original) The sensor of claim 64, wherein, said electrical signal comprises a varying voltage, said varying voltage is applied to said transducer.

66. (original) The sensor of claim 64, further comprising a transducer output, said output correlating to a temperature.

67. (original) The sensor of claim 64, wherein, said transducer is a temperature measuring device.

68. (original) The sensor of claim 66, wherein, said transducer output correlates to calibration data.

69. (original) The sensor of claim 66, wherein, said transducer output correlates to a standard reference output.

70. (original) The sensor of claim 66, wherein, said transducer output correlates to a National Institute of Standards and Technology reference.

71. (original) The sensor of claim 66, wherein, said transducer output correlates to an International Electrotechnical Commission reference.

72. (original) The sensor of claim 64, wherein the transducer is a conditioner, said varying voltage is applied to said conditioner.

73. (original) The sensor of claim 72, further comprising a conditioner output, said output comprising a conditioned varying voltage.

74. (original) The sensor of claim 73, wherein, said varying voltage is adapted to power electronics.

75. (original) The sensor of claim 73, wherein said conditioner output is adapted to power electronics.

76. (original) The sensor of claim 64, wherein, the second component comprises yttrium oxide and zirconium oxide.

77. (original) The sensor of claim 64, wherein, the sensor is a thermocouple.

78. (original) The sensor of claim 64, wherein, the sensor is a heat flux sensor.

79. (original) The sensor of claim 64, wherein, the sensor comprises one of a parallel array of sensors to create a thermopile.

80. (original) The sensor of claim 64, adapted to operate up to 1700 °C.

81. (original) The sensor of claim 64, comprising a pair of leads connected one each to said first and second component for transmitting the electrical signal.

82.-83. (cancelled)